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(12) UK Patent Application (19) GB (11) 2 350 555 (13) A

(43) Date of A Publication 06.12.2000

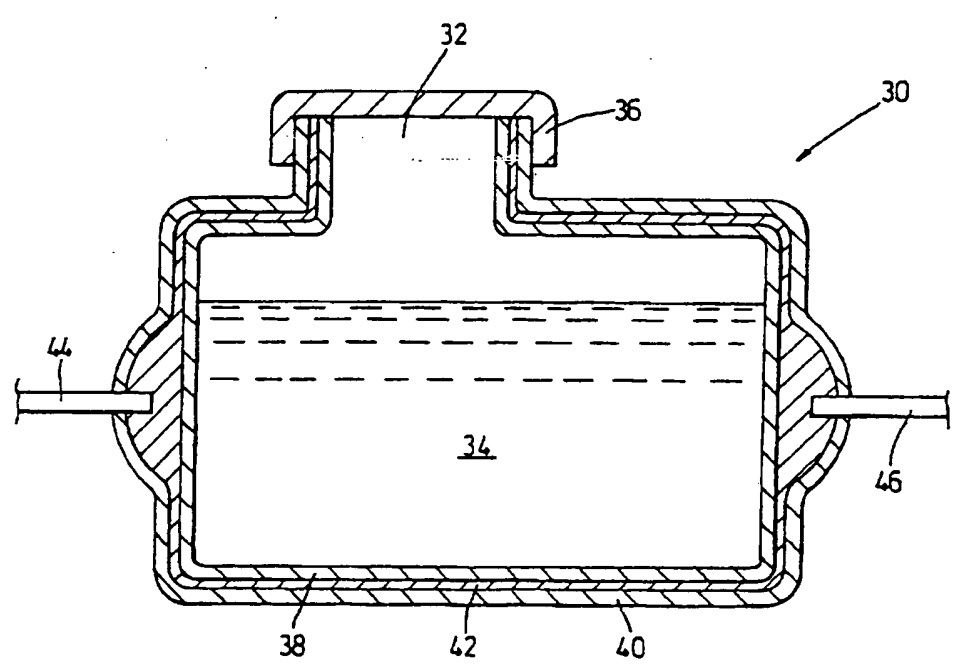
(21) Application No 0011888.5
 (22) Date of Filing 18.05.2000
 (30) Priority Data
 (31) 9912874 (32) 03.06.1999 (33) GB

(71) Applicant(s)
 Rover Group Limited
 (Incorporated in the United Kingdom)
 International Headquarters,
 Warwick Technology Park, WARWICK, CV34 6RG,
 United Kingdom
 (72) Inventor(s)
 Peter Lumsden
 (74) Agent and/or Address for Service
 Bromhead & Co
 19 Buckingham Street, LONDON, WC2N 6EF,
 United Kingdom

(51) INT CL⁷
 B60S 1/48
 (52) UK CL (Edition R)
 A4F FAMC
 (56) Documents Cited
 GB 2310795 A GB 2044601 A GB 1318498 A
 US 5354965 A US 3489884 A
 (58) Field of Search
 UK CL (Edition R) A4F FAMC FAMC
 INT CL⁷ B60S 1/48 1/50
 Online: PAJ, EPODOC, WPI

(54) Abstract Title
Screen wash reservoir including a positive temperature coefficient of resistance plastics material

(57) Screen wash reservoir 30 comprises an intermediate wall 42 disposed between an inner wall 38 and an outer wall 40. The intermediate wall 38 comprises a plastics material having a positive temperature coefficient of resistance. Passing an electric current across the intermediate wall causes it to heat up, which helps to prevent freezing of the wash fluid in the screen wash system. The reservoir 30 may be formed by blow moulding a tube of coextruded plastics, or by sequential component injection.



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Motor Vehicle Assembly

The present invention relates to a motor vehicle glazing washer assembly, and more particularly to an element of such a motor vehicle glazing washer assembly.

A motor vehicle glazing washer assembly includes among other elements a screen wash reservoir to store washer fluid.

5 However, in cold conditions the washer fluid may freeze within the washing system and it may not be possible to operate the washer assembly.

A number of solutions to prevent freezing of the washer fluid in the washing system have been suggested. These include mounting the fluid reservoir near a heated component, such as the engine or exhaust.

10 It is an advantage of the present invention that it eliminates, or at least substantially reduces at least some of the problems identified above.

According to a first aspect of the present invention, a screen wash reservoir comprises an inner wall, an outer wall and an intermediate wall disposed between the inner wall and the outer wall, in which the intermediate wall comprises a plastics material having a positive
15 temperature coefficient of resistance

The invention will now be described, by way of example only, with reference to the accompanying drawing which shows a section of a screen wash reservoir according to the present invention.

Referring to the Figure, there can be seen a screen wash reservoir 30 according to the
20 present invention. The screen wash reservoir 30 may be of any shape required. The screen wash reservoir 30 is provided with an opening 32 at an upper part through which screen wash 34 may be introduced into the screen wash reservoir. Preferably, the opening is

provided with releasable sealing means 36, for example a screw cap. The screen wash reservoir 30 comprises an inner wall 38, an outer wall 40 and an intermediate wall 42 disposed between the inner wall and the outer wall.

The intermediate wall 42 comprises a plastics material having a positive temperature
5 coefficient of resistance. The inner wall and the outer wall may be of any suitable insulating plastics material. The inner wall 38 should be resistant to any additive contained within the screen wash to be contained therein. The outer wall 40 should be resistant to external environmental conditions.

First and second electrical contacts 44,46 are introduced into the material of the
10 intermediate wall 42 through the outer wall 40 to place the intermediate wall material in an electrical circuit. The circuit may be operated by any convenient means, for example by an electrical control unit (not shown) which may operate the electrical circuit in response to a number of stimuli, for example a temperature sensor, a user operated switch operated from within a passenger cell of the motor vehicle to which the screen wash reservoir 30 of the
15 present invention is fitted.

In use, when an electric current is passed across the intermediate wall, the intermediate wall will heat up. The intermediate wall 42 will in turn heat the material of the inner wall to prevent freezing of the screen wash 34 contained within the screen wash reservoir 30 thereby ensuring a ready supply of screen wash without requiring that the screen wash reservoir be
20 mounted near a heated component such as a motor vehicle engine or exhaust.

The screen wash reservoir may be formed by any suitable means. For example, it may be formed by blow moulding of a tube of coextruded plastics. Alternatively, the reservoir may be produced as a result of sequential component injection; the outer wall material being injected first into a mould cavity, the material of the intermediate wall 42 being introduced
25 behind the outer wall material, the inner wall material being injected behind the intermediate

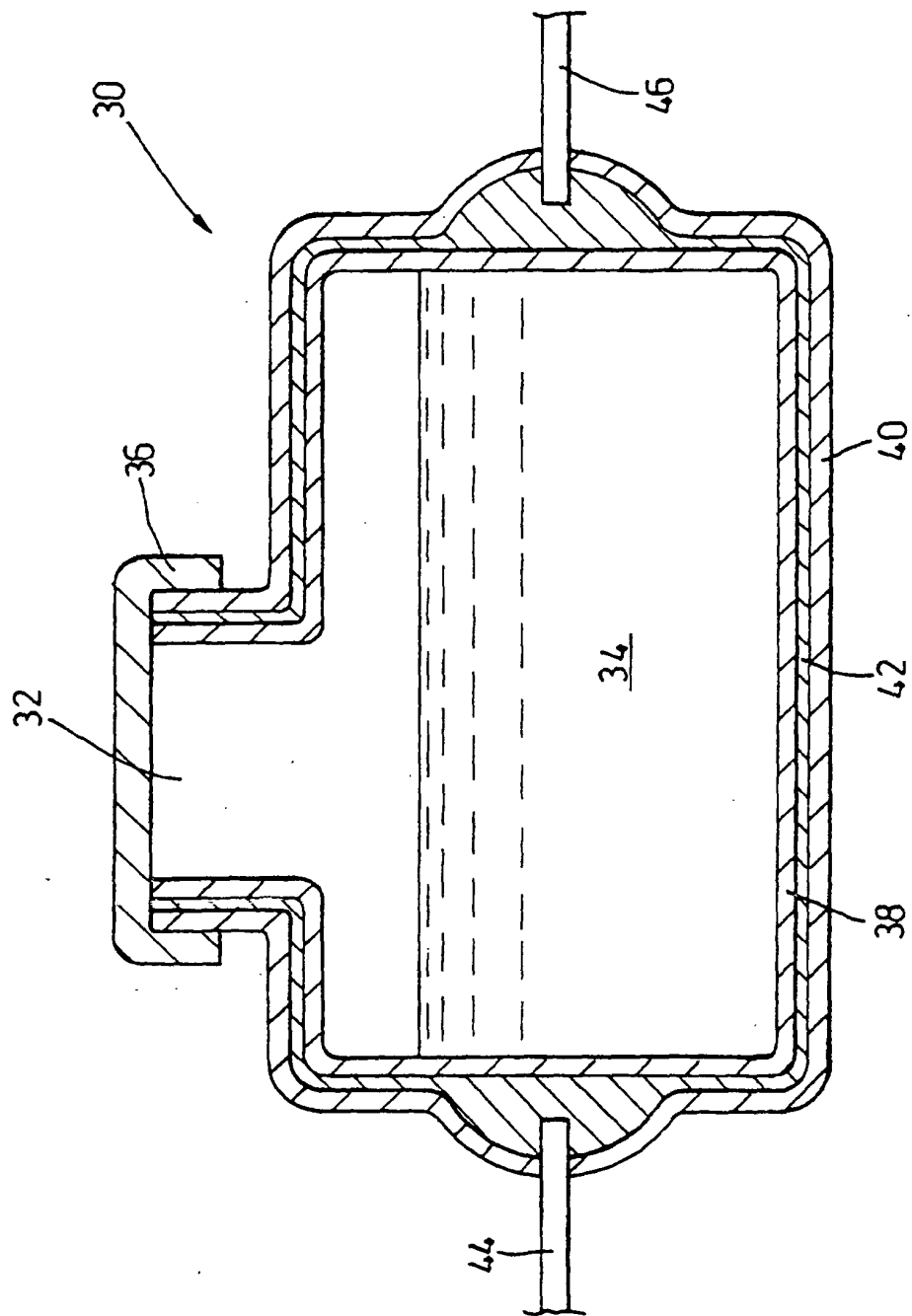
wall material, and a gas being injected behind the inner wall material to spread the three layers evenly over the mould cavity.

The screen wash reservoir 30 of the present invention has as an advantage that no metal components are contained within the screen wash reservoir. As a result the screen wash
5 reservoir can more easily be recycled since there are no metallic parts to be removed from the screen wash reservoir.

CLAIMS

1. A screen wash reservoir comprising an inner wall, an outer wall and an intermediate wall disposed between the inner wall and the outer wall, in which the intermediate wall comprises a plastics material having a positive temperature coefficient of resistance.
2. A screen wash reservoir substantially as described herein with reference to and as illustrated in Figure 1 of the accompanying drawings.

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Application No: GB 0011888.5
Claims searched: ALL

Examiner: Annabel Ovens
Date of search: 30 August 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): A4F (FAMC, FAMD)

Int Cl (Ed.7): B60S (1/48, 1/50)

Other: Online: PAJ, EPODOC, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
Y	GB 2310795 A (STALAW AND HECHT) see page 2 lines 8-15	1
Y	GB 2044601 A (SMYTH) see page 1 lines 51-55 and 92-93	1
Y	GB 1318498 (CODELUPPI) see page 1 lines 78-81	1
Y	US 5354965 (LEE) see column 2 lines 27-36	1
Y	US 3489884 (WASELESKI) see column 1 lines 46-55 and column 2 lines 34-39 and lines 47-51	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.